

# DIGEST *of* AIR REGULATIONS

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# INTRODUCTION

*to the*

## DIGEST OF AIR REGULATIONS

The air engineer or air pilot operating in Canada must constantly bear in mind the four parts of Air Regulations with which he is in every-day contact and which govern all his flying activities. These are:

- (1) **Air Regulations** proper, issued in pamphlet form.
- (2) **Information Circulars**, issued from time to time by the Minister through the Civil Aviation Branch.
- (3) **Specifications** in log books and Certificates of Registration and Airworthiness stating conditions under which aircraft may be flown.
- (4) **The Conditions** written or printed in each pilot's or engineer's certificate specifying the work that he may undertake by virtue of the licence he holds.

In the following pages we have given a "digest" of Air Regulations, covering the essential points briefly and in plain language. A determined effort has been made to avoid legal phraseology; but it is hoped that the law will lose none of its force through being stated in plain language. When it is stated: "Any aircraft flying abroad from Canada must have a Certificate of Airworthiness," it means just that and nothing else. Since this is a digest of **Canadian** Air Regulations, whenever a reference is made to aircraft, pilot, certificate, etc., it must be understood to mean, Canadian aircraft, Canadian pilot,—etc., unless otherwise stated.

It must also be understood that these are notes on law, simplified for the benefit of the pilot or engineer who is not concerned with the plugging of legal loopholes,—but not the law itself. This "digest" must not be quoted as law or having the force of law in any legal proceedings.

It is believed that the "Digest" will be of particular aid to the student in his interpretation of Air Regulations. For easy reference, the number in brackets at the end of each section refers to the corresponding paragraph in Air Regulations from which the section is taken.

## DIGEST OF AIR REGULATIONS

### PART I

#### Interpretation.

"Minister" means the Minister of Transport.

- (q) "**Commercial aircraft**" means an aeroplane operated for money or other reward or for business purposes.
- (r) "**Pilot**" in relation to an aircraft means the person in charge of it.
- (s) "**Air Engineer**" is a person who holds a licence issued by the Minister authorizing him to act according to the terms of his licence.
- (t) "**Night**" means half an hour after sunset and half an hour before sunrise in Canada. In flight beyond Canada, it means between sunset and sunrise.

## PART II

### REGISTRATION AND MARKING

No aircraft shall fly in Canada unless it has been registered except:

- (a) Aircraft flown for experiment or test within three miles of an airport.
- (b) Aircraft registered in other parts of the Empire or in some other state with which Canada has a reciprocal agreement. (3)

An aeroplane to be **registered in Canada** must belong wholly to a British subject or subjects or to a company which has been incorporated in the Empire and of which the President or Chairman and at least two-thirds of the Directors are British subjects. (5)

No aircraft shall be registered in Canada while it is registered in any other part of the Empire or in any foreign country. (6)

No aircraft shall be registered in Canada unless it has been built in Canada or unless customs duties which are payable upon the importation of the aeroplane into Canada have been paid. (7)

**The cost** of registering an aeroplane in Canada is \$5.00. On receipt of an acceptable application for registration with a \$5.00 fee the Minister assigns a registration mark and after inspection may grant a certificate of registration.

**When an aeroplane is sold** the registration and Certificate of Airworthiness lapse; and the original owner must notify the Department. The purchaser must send in an application for registration together with \$5.00. (8)

**When an aeroplane is destroyed** or withdrawn from use the owner must notify the Department and the registration then lapses from the date of notification.

Certificates of registration must be endorsed at least once a year by the Minister of Transport to remain valid. (9)

A certificate of registration may be suspended or cancelled at any time for cause. (11)

**Any aircraft flying abroad** from Canada must have a Certificate of Airworthiness.

All civil aircraft registered in Canada must be certified as airworthy except private aircraft flying wholly within Canada.

**Every foreign aircraft entering Canada** must bring with it a valid certificate of airworthiness. (12)

Certificates of airworthiness may be limited to flying in specified areas, on specified routes, for specified periods, and upon compliance with specified conditions.

A C. of A. must be endorsed by the Minister at least once a year to remain valid.

An aircraft certified as airworthy may be inspected at any time by an authorized representative of the Minister. He may cancel or suspend the certificate if the aircraft is considered unsafe.

A C. of A. may be cancelled at any time by the Minister of Transport for cause. (13)



A C. of A. costs \$5.00 for a type of aeroplane that has previously been certified as airworthy in Canada or any other part of the Empire or any country with which Canada has a reciprocal agreement. A C. of A. for any other aeroplane costs \$25.00. (14)

Every aircraft registered for flight must bear the registration marks allotted to it. (15)

An aeroplane registered in Canada is allotted a combination of five letters commencing with the nationality marks "CF" and a combination of three other letters, e.g., CF-CCA.

The letters must be painted once on the lower surface of the bottom main planes and once on the upper surface of the top main planes with the top of the letters toward the leading edge. They must also be painted on each side of the fuselage. The height of the letters on the main planes must be equal to four-fifths of the chord and, on the fuselage, four-fifths of the narrowest part of the fuselage to which the letters run. The width of the letters must be two-thirds of their height and the thickness one-sixth of their height. Letters must be painted in plain block type and be uniform in size and shape. A space equal to half the width of the letters must be left between them. (16)

**On privately owned aircraft**, the nationality and registration marks must be underlined with a black line the same thickness as the letters and spaced its own thickness from the bottom of the letters.

A hyphen, equal in length to the width of a letter, must be painted between the nationality and registration marks. (16)

Every aeroplane must carry on the fuselage a metal plate showing the name and residence of the owner and the nationality and registration marks. (17)

### PART III AIR HARBOURS

All airports must be licensed. (18)

An airport licence costs \$10.00. (19)

An airport licence may be suspended or cancelled at any time for cause and ceases to be valid two weeks after change of ownership unless renewed by the new owner. (21)

Every airport must be marked according to regulations. (22)

Every airport must keep an **airport register** showing the time every aeroplane lands or takes off; also the nationality, registration marks and names of the pilot and owner. (26)

Every licensed airport is open to inspection by a representative of the Minister at any time. (27)

Every airport must have a **wind cone** or some other means of showing the wind direction. (29)

Except in cases of distress, **circuits**, if made, must always be left handed at every licensed airport unless otherwise specified (Calgary). (30)

Every licensed aerodrome is regarded as consisting of three **zones** when looking up-wind. The taking-off zone is on the right and the landing zone on the left and a strip 100 yards wide between them is the neutral zone. (32)

## PART IV PERSONNEL

Every person, either in Canada or abroad, acting as a pilot or engineer of a commercial aircraft registered in Canada must hold a certificate authorizing him so to act. This does not apply to:

- (a) Students under instruction flying under approved conditions.
- (b) Pilots and engineers of foreign aircraft flying in Canada. (33)

Dual instruction can only be given by special authority.

The Department issues certificates to pilots, navigators and engineers and it may limit them, in time, to specified conditions, specified purposes, specified types of aircraft, on specified routes, or otherwise. (34)

Every person to whom a pilot's, engineer's or navigator's certificate for commercial or state aircraft is issued must be a British subject or a subject of a foreign country granting reciprocal rights to Canadians. (37)

Any certificate may be suspended or cancelled at any time for cause, which includes failure to comply with certain sections of the Canadian regulations when flying beyond Canada. (38)

## PART V LIGHTS

An aeroplane when in flight at night shall carry the following lights:

- (a) On the **right** side a **green light** showing through an angle of  $110^\circ$  measured from dead ahead to the right and visible for 3 miles.
- (b) On the **left** a **red light** showing through an angle of  $110^\circ$  measured from dead ahead to the left and visible for 3 miles.
- (c) The green light must not be visible from the left side nor the red light from the right side.
- (d) At the **rear** and as far aft as possible, a **white light** shining rearwards showing through an angle of  $140^\circ$  bisected by the line of flight and visible for 3 miles.

An aeroplane **taxiing on water at night** must carry full navigation lights and, in addition, a white light forward showing through an angle of  $220^\circ$  bisected by the line of flight and visible for 5 miles. In measuring these angles it is assumed that the aircraft is in the attitude for straight and level flight. (41)

An aeroplane **drifting** out of control on water at night must not show navigation lights; but must show two red lights not less than seven feet apart in a vertical line one above the other, visible for 2 miles. (44)

An aeroplane **at anchor** or moored on water must carry forward where it can be best seen a white light showing all around the horizon, and visible for one-and-a-half miles. (45)

An aeroplane **standing or taxiing** on an aerodrome at night must carry full navigation lights. (50)

If **navigation lights fail** in flight, a landing must be made at the first safe opportunity.

## PART VI

### SIGNALS

The call sign of an aircraft shall be the complete group of five letters constituting its nationality and registration marks. (52)

An aeroplane wanting to land on a licensed aerodrome at night must, before landing, either fire a green Very's light or flash a green lamp. Permission to land will be given by firing a green Very's light or flashing a green lamp from the ground. (53)

The firing of a red Very's light or the flashing of a red light from the ground is the signal that a landing must not be made at that time. (54)

An aeroplane forced to land at night should, before landing, fire a red Very's light or make a series of short flashes with the navigation lights.

To warn an aircraft that it is in the vicinity of a prohibited zone, and should change its course, the following signals shall be used:—

- (a) By day, three discharges at intervals of 10 seconds of a projectile showing, on bursting, white smoke, the location of the burst indicating the direction the aircraft should follow;
- (b) By night, three discharges at intervals of 10 seconds of a projectile showing, on bursting, white stars, the location of the burst indicating the direction the aircraft should follow. (57)

To require an aircraft to alight, the following signals shall be used:—

- (a) By day, three discharges at intervals of 10 seconds of a projectile showing on bursting black or yellow smoke.
- (b) By night, three discharges, at intervals of 10 seconds of a projectile showing on bursting red stars or lights.

In addition, when necessary to prevent the alighting of aircraft other than the one ordered, a searchlight, which shall be flashed intermittently, shall be directed towards the aircraft whose alighting is required. (58)

No unauthorized lights, signals, or markings may be used or displayed. (62)

## PART VII

### RULES OF THE AIR

#### Very Important.

**Risk of collision** is deemed to exist when the bearing and angle of elevation of an approaching aircraft do not appreciably alter; or when the courses, if continued, would bring the aircraft within 200 yards of each other. (This means that aeroplanes in flight must keep at least 200 yards apart. (65, 66 and 67)

**When two aircrafts are meeting** head-on or nearly head-on each shall alter its course to the right. (68)

**When two aircraft are flying on courses which cross** the one on the right has the right-of-way. The one on the left must alter its course so as to pass behind the other. (69)

**When one aircraft is overtaking** another it must keep clear to the right of and not pass above or below the over-taken aircraft. If the side lights of the slower plane cannot be seen the rules applying to overtaking



aircraft must be followed. In daytime, if there is any doubt, the rules for overtaking aircraft should be followed; and the overtaking aircraft must keep out of the way. (70)

Where the rules require an aeroplane to alter its course and give way, it must not pass in front of the other aeroplane. (72)

Aircraft must fly on the right side of a recognized air route. (73)

Aircraft on land or water, about to take-off, must not attempt to take-off until there is no risk of collision with alighting aircraft. (74)

## PART VIII

### TRAFFIC IN THE VICINITY OF LICENSED AERODROMES.

#### Rules for Landing.

When coming in for a landing an aeroplane must:

- (i) Approach from the lee side of the field.
- (ii) Land into the wind.
- (iii) Come in straight for at least 550 yards and toward the landing zone.
- (iv) Keep clear of other aircraft coming into land at a lower level; and, while in the air, observe the law governing overtaking aircraft.
- (v) Land to the left of aircraft that have landed in front of it keeping as close as possible to the neutral zone.
- (vi) Taxi immediately into the neutral zone.
- (vii) Under no circumstances make acrobatic landings.

#### Rules for Taking-off.

- (i) Taxi in the neutral zone to the extreme lee side of the taking-off zone.
- (ii) Use the full length of the field in taking-off.
- (iii) Take-off into wind.
- (iv) Take-off from the right side of the taking-off zone, but to the left of aircraft taking-off in front of you.
- (v) Remain on the ground until a plane taking-off in front of you is clear of the far edge of the aerodrome.
- (vi) Do not take-off if there is risk of collision with aircraft landing.
- (vii) Fly straight for at least 550 yards before turning and observe circuit law. i.e. turn left if inside 1200 yards.
- (viii) Get off the aerodrome as soon as possible.

Circuit law must be observed within 1200 yards horizontally and 6000 feet vertically of an aerodrome. (80)

Aeroplanes must not stunt within 6000 feet of an aerodrome in any direction vertically or horizontally. (81)

An aeroplane showing signs of distress must be given the right-of-way in landing. (85)

An aeroplane landing or taking-off must not remain in the zone or runway longer than necessary. (87)

Rules governing traffic at airports also apply to seaplane stations with the following exceptions:

- (a) 550 yards straight flying for landing and taking-off.
- (b) Conforming to circuit law.



- (c) Use of neutral zone.
- (d) Remaining still until preceding plane is clear of airharbor.  
An aeroplane taxiing down wind on water has the right-of-way. (90)  
A copy of Part VIII must be posted at every aerodrome.

## PART IX

### DANGEROUS FLYING

- (1) An aeroplane **flying over a city** or populous area must keep enough height to glide clear in case of engine failure. (92)
  - (2) **Trick flying** over town, cities or populous areas is forbidden.
  - (3) Trick flying over race meetings, regattas or public gatherings is forbidden unless authorized in writing by the promoters concerned.
  - (4) **Low flying**, near persons or dwellings, that is dangerous to public safety, is forbidden.
  - (5) It is forbidden to drop any article from an aeroplane that might cause damage or injury. Water or fine sand may be used as ballast.
  - (6) No aeroplane shall be rolled, spun, looped or put through any evolution involving unnecessary risk, unless the pilot is alone in it. i.e., **stunting with passengers** is absolutely forbidden.
  - (7) Entering or leaving an aeroplane in flight is forbidden unless to make a parachute jump.
  - (8) **Gymnastic displays**, such as wing walking, etc. are forbidden.
- (93)

## PART X

### INTERSTATE FLYING

An aeroplane flying into Canada **from abroad** must make its first landing at a customs airport. An aeroplane flying abroad from Canada must leave from a customs airport and must not land in Canada again without first completing its journey abroad. (96)

No aircraft proceeding from or entering Canada shall carry **arms or explosives** or munitions of war.

An aircraft must not have secret places for concealing goods when entering or leaving Canada.

On an outward bound aircraft, the pilot must make a statement to the customs collector showing the destination, description of aircraft, pilot's name, cargo, passengers and crew. (104)

An outward bound flight must not be undertaken until the pilot has received a certificate-of-clearance from Customs.

If an inward bound aircraft is compelled to make a forced landing at an airport that is not a customs airport, the pilot must immediately report to the airport manager or to the police. In the event of a forced landing by an inward bound aircraft the pilot must communicate with the local police immediately and the customs officials at the earliest opportunity. (108)

## PART XI

### SCHEDULED AIR TRANSPORT SERVICE. (New May 1936)

Air Regulations 1920 were amended on May 30th 1936 so that in future no commercial aircraft shall be operated on any international or interurban scheduled air transport service unless the said service has been licensed by the Minister.

Minimum requirements are as follows:

Terminal airports and intermediate fields at intervals not exceeding fifty miles must be licensed.

Night flying routes must be adequately lighted.

Weather reports covering the routes must be available.

Ground communications along the routes must be available.

Aircraft must be of an approved type, and there must be sufficient spare aircraft to ensure regular service.

Multi-engine aircraft must be capable of continuing flight with one engine out of commission at a height sufficient to clear all obstructions by at least 500 feet in visual or contact flying, and by 1000 feet in instruments or over-top flying.

Such multi-engined aircraft must be capable of continuing to take-off with authorized load in the event of engine failure of one engine during take-off.

Single-engine aircraft must only be used for passenger carrying by day, except under authority of certain waivers.

Single-engine aircraft must not be flown over water except within gliding distance of land.

Multi-engine aircraft over water over fifty miles from shore must have approved flotation gear.

First pilots must hold a Public Transport Pilot's Certificate.

Aircraft must carry sufficient oil and fuel to fly forty-five minutes in addition to the time required for the next scheduled stop, above and beyond that required by abnormal wind and weather conditions.

Aircraft may not be flown within 500 feet of the ground, except during landings and take-offs.

Intentional instrument flying is not to be carried out unless the ceiling is at least 500 feet and the aircraft is fitted with serviceable radio equipment capable of:

- (1) Maintaining two-way communication with the ground.
- (2) Receiving radio beacon signals if the ground stations are installed and/or obtaining D.F. bearings from the aircraft on suitable broadcasting stations operating during scheduled flight.

## PART XII

### GENERAL PROVISIONS

**Explosives** are forbidden on passenger aeroplanes.

**Mails** must not be carried without the authority of the Post Master General. (114)

The boundary of a prohibited area commences at a point where a line from the aeroplane to the nearest point of the prohibited area makes an angle of 50° to the vertical.

An aeroplane must not carry a **camera** or take photographs in Canada unless it is registered in Canada or some other part of the Empire. (116)

**Radio** must not be carried without a license. (114)

A commercial aircraft must be **inspected by an air engineer** every day that it is in use. If the first flight starts before 8 a.m. then an inspection after 12 noon on the previous day, or after the last flight on the previous day, which ever is later, will do.

The **engineer must certify** airworthiness in the Journey and Aircraft logbook, and the pilot must counter-sign this. No member of a crew of an aeroplane is permitted to fly while in a state of intoxication. (117)

**Before flight**, the pilot of a commercial aircraft must enter in the log book the weight of the load carried. He is responsible that the load carried does not exceed that specified in the C. of R. and that it is secured. (118)

Every aircraft in flight must carry its C. of A., C. of R., the licences of all the crew requiring licences, and a Journey logbook. (121)

Every commercial aeroplane must have:

- (a) **A Journey and Aircraft logbook** containing a full description of the aircraft, the instruments and accessories carried in it and showing the names, nationality and addresses of the owners. A fully detailed record of the life of the aircraft, overhauls, repairs and replacements must be shown; also the loads carried and the hours flown.
- (b) **An engine logbook** for each engine giving full description of engine, accessories, and running data. It must show a detailed record of the life of the engine, including hours run, overhauls, repairs and replacements.

**Entries in logbooks** must be made in ink as soon as possible after the events they record.

Entries to be made in the journey and aircraft logbook may first be made in a rough note book, but must be permanently entered within 24 hours after the events recorded.

The pilot or other competent person is responsible for making these entries.

**All entries must be signed** by the person by whom they are made.

**Erasures** must not be made nor leaves torn from any logbook.

A copy of the C. of A. and the C. of R. must be kept in a pocket at the end of the aircraft logbook. (122)

Every holder of a licence must produce it on demand by a peace or customs officer or representative of the Minister. All logbooks must likewise be produced on demand.

If an aeroplane flies in breach of regulations, the owner as well as the pilot and the crew is liable therefor. (128)

Any person who obstructs an officer in the exercise of his duties under these regulations is guilty of a breach of regulations. (130)



**IMPORTANT.** If any person is **killed or injured** in or by an aeroplane, the pilot or the owner must report the date and place of the accident to the Minister by telegram immediately. A full report must be mailed to the Minister by the pilot or owner as soon as possible.

If an aeroplane is damaged so that more than running repairs or replacements are necessary, the owner or pilot must make a written report to the Minister, giving full particulars of the damage.

An aeroplane involved in an accident causing death or injury **must not be removed** without the permission of the Minister.

It may be moved, however, to extricate persons, remove mails or prevent destruction by fire. (132)

## INTERSTATE FLYING TO THE UNITED STATES

A Canadian aircraft entering the United States must:

- (a) Carry a C. of A., a C. of R., licences for all the crew and journey and aircraft logbook.
- (b) Must get customs clearance; take-off from a customs airport; and fly to a customs airport.
- (c) The pilot must wire ahead to the customs airport at the point of entry, stating the estimated time of arrival and giving description of plane and number of passengers.

Canadian aircraft must not carry **cameras** into the United States nor take photographs from the air while in the United States.

A Canadian aeroplane carrying passengers or cargo to a distant point in the United States may land at a customs airport and carry on to its destination with its cargo or passengers but must not pick up passengers or cargo en route.

A Canadian aeroplane is permitted to take on passengers or cargo destined to Canada at different airports in the United States on the return trip to Canada, if they are coming through to Canada. (Appendix)

American aircraft flying to or in Canada are permitted exactly the same privileges and are bound by exactly the same restrictions as Canadian aircraft flying into or in the United States.

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An application for a private pilot's licence must be accompanied with a fee of \$2.00. At present there is no charge for an engineer's licence or a commercial pilot's licence.

A private pilot, to keep his licence in good standing, must be medically examined and found fit at least once a year and after every serious accident or sickness. A commercial pilot (male) to keep his licence in good standing must be medically examined and found fit at least every six months. Females every four months.

These last conditions are printed in the front of every pilot's licence and, for the holder, they constitute Air Regulations.



## CAN YOU ANSWER THE FOLLOWING QUESTIONS ON AIR REGULATIONS?

1. What is a commercial aeroplane? What is meant by "night" when flying (a) in Canada (b) abroad?
2. What aeroplanes must be registered in Canada? What are the exceptions?
3. You have bought and wish to operate a commercial aeroplane of an approved type in Canada. What certificates do you need? What do they cost? How do you obtain them? What combinations of letters are used to show nationality and registration of Canadian aircraft?
4. For what period are C. of R. and C. of A. valid? How are they kept in good standing? How is a privately owned aeroplane marked? Does it need a C. of A. in Canada? In the U.S.A.
5. May you fly a private aeroplane without a C. of R? Without a pilot's certificate?
6. What is the "Circuit law" at a licensed airport?
7. What persons on board an aeroplane must have licences?
8. What lights must an aeroplane carry at night? (a) In the air? (b) taxiing on water? (c) standing or taxiing on an aerodrome? (d) at anchor? (e) drifting out of control?
9. What signals are used to: (a) ask and give permission to land? (b) refuse permission to land? (c) indicate emergency landing from the air?
10. What constitutes risk of collision? What are the rules for (a) meeting head on? (b) crossing courses? (c) overtaking?
11. What are seven rules that must be observed in taking-off from a licensed airport?
12. There are eight rules for landing at a licensed airport, what are they?
12. There are eight rules covering dangerous flying, what are they?
13. As pilot of a commercial aeroplane, what must you do before flying to the U.S.A.?
14. What is the law in respect to the daily inspection of aircraft?
15. What logbooks must an aeroplane have? What entries are made in them? By whom and in what manner?
16. Who is responsible that an aeroplane is not overloaded? How do you ascertain what load an aeroplane may carry?
17. What do you do if your aeroplane has (a) Had its propeller broken? (b) Had one wing damaged beyond repair? (c) Taxied into and injured a by-stander?
18. What rights have: (a) Canadian aeroplanes flying into the U.S.A.? (b) What restrictions are placed on them? (c) What rights and restrictions have American aircraft flying in Canada?

## SUMMARY OF REQUIREMENTS FOR ISSUE OF PILOT'S LICENCES

**PRIVATE PILOT'S LICENCE.** Application form with 3 photographs 2" x 3", \$2.00 fee, spin certificate, and medical category of "B" or better within one year. Age over 17 years.

**Flying Tests:** four landings from 1,500' coming to rest within 50 yards of mark. One landing from 5,000' coming to rest within 100 yards of mark. Five figure "8" turns. Written examination on Air Regulations.

**LIMITED COMMERCIAL LICENCE.** Application form with 3 photographs 2" x 3" and proof of 50 hours flying experience. Medical category up-to-date within six months, "A" category. Age 19 to 45 years.

**Flying Tests:** cross-country 190 miles round trip. Four landings from 1,500' and one from 5,000' all upon signal. Spin. Five figure "8" turns.

**Written examinations on:** theory of flight, Engines and Rigging, air pilotage and meteorology, and Air Regulations.

**Practical test on:** engines, rigging, and compass swinging.

**TRANSPORT LICENCE.** Application with proof of 250 hours flying time, 3 photographs, and medical up-to-date. Age 19 to 45 years.

**Flying tests:** landing tests. Cross-country 200 miles. Endurance test at 6,000' for one hour. Night flying for 30 minutes. Instrument flying for 30 minutes. Spins.

**Practical Tests on:** engines, rigging, and compass swinging.

**Written examinations on:** theory of flight, engines and rigging, air pilotage and meteorology, and Air Regulations.

**AIR ENGINEER'S CERTIFICATES A AND C:** Applicant must be a British subject with two years practical experience; three letters of competency from previous employers verifying the record of practical experience. Practical tests on: (a) Adjustment of rigging for flight, (b) Repairs to fabric, wood and metal parts, (c) Running repairs of aero engines. The written or oral examination is on the following subjects: (a) Assembly and rigging of aircraft, (b) Construction and operation of aero engines, (c) Carburetors, magnetos, and other accessories, (d) Causes of faulty running of engines and correction, (e) Lubricating oils used in aero engines, (f) Equipment necessary in aircraft operating in Canada, (g) Capacity, disposition of useful load in aircraft, (h) Air Regulations, (i) Aircraft instruments.

**AIR ENGINEER'S CERTIFICATES B AND C:** The requirements are the same as above except that the applicant must have two years factory experience, and generally higher qualifications.



